

# VelaSync™ 1232 High Speed Time Server

## 10/40 GbE High Performance PTP Grandmaster and NTP Server



- PTP + NTP on all ports
- Low 100s of nanoseconds accuracy
- 1G/10G/40G Ethernet
- I/O support for 1PPS, IRIG
- Multi-GNSS support (GPS, Galileo, GLONASS, Beidou)
- Rubidium atomic clock option
- STL sync option for indoor timing or to augment GNSS\*
- BroadShield GPS jamming and spoofing detection option\*
- Advanced user interface and REST API
- Secure network management; enable or disable protocols for encryption, authentication, authorization and accounting
- IPv4/IPv6\* dual stack
- Dual redundant and hot-swappable AC power supplies and hard drives

The VelaSync™ 1232 high speed time server is a network appliance designed for high frequency trading and other low-latency network applications. The combination of VelaSync 1232's highly optimized timing protocols and management functions, Orolia's precision GPS timing technology and the flexibility of commodity hardware offer exceptional performance as it keeps pace with the needs of evolving network infrastructure.

The server offers multiple 1GbE (RJ-45), 10GbE (SFP+), and 40GbE (QSFP) network ports for set-up, management and simultaneous NTP and PTP server/grandmaster capability. It also comes standard with 1 Pulse Per Second (1PPS) and IRIG input and outputs (BNC) allowing for easy connection with frequency handoffs from service providers or driving the clock signal for monitoring devices.

### Flexible Configuration Provides Reliable, Secure Time

The VelaSync 1232's web-based user interface simplifies the configuration of multiple time sources for resiliency against GPS jamming or spoofing attacks, network issues and equipment failures. For example, the server can be easily set up to use a PTP source as a backup to the on-board GPS with an NTP source as a cross check. Multiple servers can be set up to back up each other so that if one fails, the time service continues. The VelaSync 1232 includes dual redundant hot-swap power supplies and 1T hard drives.

The VelaSync 1232 comes standard with multiple GNSS support, allowing you to choose from GPS, Galileo, GLONASS, or Beidou and use any two of those constellations simultaneously as references. And now, with the addition of alternate signals of opportunity, you can augment those GNSS signals or cut the cord altogether with an indoor solution.

### Smart Reference Monitoring

The VelaSync 1232 uses smart reference monitoring to validate the fidelity of all available references. It does this by actively comparing phase offset of each reference against the primary reference and each other. The phase error validation calculates long-term averages and standard deviations of the phase offset between the monitored external reference and the internal system reference. The standard deviation is used to calculate two validity thresholds; a higher and a lower one (the latter acts as a hysteresis buffer, preventing the status flip/flopping if the actual phase error validation value varies closely around the outer threshold).

### Security

Security is a priority within the VelaSync 1232 and included as part of the standard platform. Capabilities include: Supporting centralized authentication\* (LDAP, RADIUS, TACACS+), journaled activity logging, secure protocol support (SSH, HTTPS), and more. Updates are generally released on a quarterly basis, but patches and fixes to major CVEs are addressed as they are discovered.

\* future capability



## Specifications

### Timing Protocols

- NTP v2, v3, v4: Conforms with RFC 5905
- SNTP v3, v4: Conforms with RFC 5905
- PTPv2 (telecom profile, hybrid mode)

### Management

Intelligent Platform Management Interface (IPMI) for remote access to monitor chassis health, power on/off and remote console access without a keyboard/monitor or RS232

### Smart Reference Management

Smart reference monitoring to ensure the fidelity of all available timing references.

### GNSS Receiver

- Connector: Type N, +5V to power active antenna
- Frequency: GPS L1 (1575.42 MHz), Galileo E1 (1575.42 MHz), GLONASS L1 (1602.0 MHz), BeiDou B1 (1561.1 MHz), QZSS L1 (1575.42 MHz)
- Satellite tracking: 1 to 72, T-RAIM satellite error management
- Synchronization time: Cold start < 15 minutes (includes almanac download), warm start < 5 minutes (assumes almanac download)
- Antenna system: sold separately

### Oscillator

Accuracy <sup>1</sup> to UTC	OCXO	Rb
(1-sigma locked to GPS)	50 ns	25 ns
Holdover Accuracy		
(loss of GPS after 2 weeks locked, constant temp)		
After 4 hours	1 μs	0.2 μs
After 24 hours	25 μs	1 μs

<sup>1</sup>Accuracy is measured by comparing the internal 1PPS with the GPS on-time point.

### I/O Breakout Cable

p/n CA08R-0000-0006



Signal	Connector
IRIG AM Input	BNC
IRIG AM Output	BNC
1PPS Input	BNC
1PPS Output	BNC
IRIG DCLS Input	DB9*
General Purpose Input/Output (1 each)	

### Time and Frequency Output

- 1PPS Output
- IRIG AM and DCLS
  - IRIG A, B, G, NASA36, IEEE 1344/C37.118

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### Communications

#### Network Ports

- 2x 1 GbE Ethernet RJ-45
- 2x 10 GbE Ethernet SFP+ (additional 2x optional)
- Optional 2x 40 GbE Ethernet QSFP

#### Front Panel

- Power On/Off button
- System Reset button
- Power LED
- Hard drive activity LED
- 2x Network activity LEDs
- System Overheat LED

#### Power

- Dual redundant hot-swappable power supplies
- 100-240 VAC, 50-60 Hz
- Typical Power Draw: 100W operating, 120W start-up

### Environmental

- Operating Temperature: 10°C to 35°C (50°F to 95°F)
- Storage Temperature: -40°C to 70°C (-40°F to 158°F)
- Operating Relative Humidity: 8% to 90%
- Storage Relative Humidity: 5% to 95% (non-condensing)

### Agency Approvals

- FCC, CE, TUV listed, RoHS

### Physical

- 1U rack mountable
- Height: 1.7" (43 mm)
- Width: 17.2" (437 mm)
- Depth: 25.6" (650 mm)
- Weight: 23.5 lbs (10.7 kg)

### Warranty

1 year hardware warranty, with additional warranty coverage available.

## Ordering Information

### Base Units

1232-013: VelaSync 1232 Time Server with internal OCXO oscillator  
 1232-033: VelaSync 1232 Time Server with internal Rubidium atomic clock

### Networking Options

OPT-10G: Adds 2x 10 GbE SFP+ ports to existing 2 for a total of 4 - 10 GbE ports  
 OPT-40G: Adds 2x 40 GbE QSFP ports

### Service Plan

PSP: Annual premium support includes 24x7 emergency telephone support, loaner units (dispatched by next business day), notification of software updates.